

Serial No. 10/055,434

REMARKS

In the Office Action mailed October 28, 2004, the Examiner rejected all pending claims 1, 3-7, 11 and 14. Claims 1 and 14 have been amended, and claims 2, 8-10, 12, 13 and 15 were previously withdrawn from consideration in connection with a restriction requirement. Claims 1, 3-7, 11, and 14 remain pending in the application (2 independent, 8 total). No new matter has been added. Reconsideration is respectfully requested in light of the following Remarks.

A. Election/Restrictions

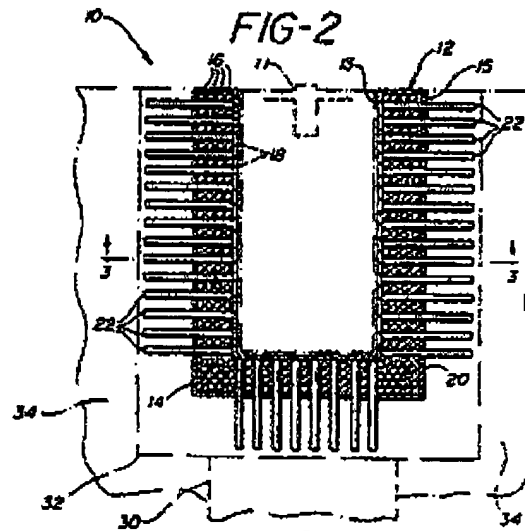
Applicant acknowledges the previous election of species as well as Examiner's indication that claim 1 is generic, and that the present Office Action is an action on the merits of claims 1, 3-7, 11, and 14.

B. Claim Rejections -- 35 U.S.C. § 102

Claims 1, 3-7, 11, and 14 stand rejected to under Section 102 as being anticipated by U.S. Patent No. 5,000,252, issued to Faghri (the "Faghri reference," or simply "Faghri"). This rejection is respectfully traversed in light of the claims as amended.

The Examiner notes the heat reservoir shown in Fig. 2 of Faghri, and suggests that the heat transfer subsystem of Faghri includes a heat pipe having a hydrated salt (citing column 4), and a plurality of fins 22.

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Faghri reference, Fig. 2

The Faghri reference generally relates to a thermal management system including a number of heat pipes extending radially outward from a heat source. Specifically, a heat source 11 is surrounded by a container 12 and heat sink 14. A number of heat pipes 22 extend outward, and may communicate with an "ultimate heat sink" 34. Heat sink 14 includes a number of "shells" 16 immersed in a bath of thermally conductive material 20. The radial temperature drop across container 12 is reduced, and the surface of wall 13 near heat source 11 is maintained at a reasonable temperature. Heat pipes 22 can transfer heat to "ultimate heat sink" 34 during a burst period.

In contrast, the present invention relates to a thermal management system wherein the heat input is subject to transient conditions, and wherein the novel configuration of elements allows these transient thermal events to be effectively managed.

More particularly, the Faghri reference does not disclose or suggest a system for managing transient thermal events wherein the heat storage subsystem is "remotely situated from said heat input" along the thermal path of the heat transfer subsystem as recited in the claims as amended. That is, to the extent that the shells and liquid in which they are immersed can be considered a heat storage subsystem, that subsystem is adjacent to, not remote from, the heat source.

Furthermore, the "ultimate heat sink" 34 of Faghri is not analogous to the heat storage subsystem of the present invention, as it does not include the claimed phase-change feature. The heat pipes 22 of Faghri appear to function in a manner similar to fins used in standard heat sinks.

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The present invention is designed to add greater flexibility in designing thermal solutions for applications subject to transient conditions in which space is a premium (e.g., laptop computers and the like). In this way, the excess heat load during transient conditions is temporarily absorbed by the heat storage subsystem, which is remotely located from the heat source, and subsequently, the absorbed heat can be released back to the ambient via a heat rejection subsystem, which may be located in any advantageous location. The Faghri reference does not achieve these goals, as its heat storage system is adjacent to the heat source, and the heat transfer subsystem disclosed does not function to manage transients in the manner claimed and described in the present invention.

In summary, the system disclosed by Faghri is structurally and functionally different from what is claimed in the present invention. Applicants therefore respectfully request that the Section 102 rejections be withdrawn.

CONCLUSION

In view of the above remarks and amendments, Applicants respectfully submit that all of the currently pending claims properly set forth that which Applicants regard as their invention and are allowable over the cited prior art.

Accordingly, Applicants respectfully request reconsideration and allowance of all pending claims. The Examiner is invited to telephone the undersigned at (602) 382-6325 at the Examiner's convenience, if that would help further prosecution of the subject Application. Applicants authorize and respectfully request that any fees due be charged to Deposit Account No. 19-2814, for which purpose a duplicate copy of this sheet is attached. **This statement does NOT authorize charge of the issue fee.**

Respectfully submitted,

Dated: 1/28/05

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